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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,511	02/25/2002	Szeming Cheng	9432-000170	2978

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EXAMINER	
HENNING, MATTHEW T	
ART UNIT	**PAPER NUMBER**
2131	

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,511	CHENG ET AL.	
	Examiner	Art Unit	
	Matthew T. Henning	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-14,17 and 20-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-14,17 and 20-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This action is in response to the communication filed 4/28/2006.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/28/2006 has been entered.

Response to Arguments

Applicant's arguments filed 4/28/2006 have been fully considered but they are not persuasive.

Regarding applicants' argument that the cited art "performs manipulation between consecutive signals" the examiner does not find the argument persuasive. The claim language recites that the difference of **every pair** of consecutive samples be taken. The applicants' appear to believe that this means that a difference between sample1 and sample2 will be taken and a difference between sample3 and sample4 will be taken but not between sample2 and sample3. However, this is not correct as sample2 and sample3 are consecutive samples and therefore the claim requires that the difference between the two be taken. However, there is no "manipulation" performed "across pairs" (i.e. difference between the pairs, (a, b) – (c, d)). As such, the examiner does not find the argument persuasive.

In response to applicants' argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "taking pure sample differences") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicants' argument that the cited art does not alternate the sign of every difference value, the argument is moot in view of new grounds of rejection.

Claims 1-4, 7-14, 17, and 20-26 have been examined and claims 5-6, 15-16, and 18-19 have been cancelled.

All objections and rejections not presented below have been withdrawn.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "taking the difference of every pair of two consecutive samples...without performing manipulation across pairs", and the use of the formulas of claims 24-26 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The amendment filed 4/28/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: The specification lacks support for the limitation of "without performing manipulation across pairs", and further lacks support for the equations of claims 24 and 26.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 7-14, 17, and 20-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1, 8, and 10 all contain the limitation of "without performing manipulation across pairs", which there is no mention of in the specification. Furthermore, newly added claims 24 and 26 recite a formula of which the specification is silent. As such, one of ordinary skill in the art would have been unable to ascertain whether the inventors possessed the invention as claimed at the time of invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite numerous "variables" for which there is insufficient antecedent basis in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

Claims 1-4, 8-14, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neubauer et al. ("Audio Watermarking of MPEG-2 AAC Bit Streams") hereinafter referred to as Neubauer, and further in view of Cox et al. ("Secure Spread Spectrum Watermarking for Multimedia") hereinafter referred to as Cox, and further in view of Birks et al. (US Patent Number 6,373,530) hereinafter referred to as Birks, , and further in view of Sprague (US Patent Number 4,617,645), and further in view of Brody et al. (US Patent Number 6,718,501).

Regarding claims 1, 8, and 10, Neubauer disclosed an encoding apparatus for embedding data in a compressed data stream (See Neubauer Fig. 7), the apparatus comprising: a decoder receptive of the compressed data stream and operable to decode the compressed data stream, thereby obtaining a decoded data stream (See Neubauer Fig. 8 and Page 5 Section 4.1 Especially "Parts of Decoder"); a data embedder in communication with said decoder and receptive of the data and the decoded data stream, said data embedder operable to embed the data into the data stream using a spread spectrum technique, thereby obtaining a data-embedded decoded data stream (See Neubauer Fig. 8 and Section 4.1 Especially "Watermark Generator" and "Weighting and Adding"); and a encoder in communication with said data embedder, said encoder operable to encode the data-embedded decoded data stream, thereby obtaining a data-embedded compressed data stream (See Neubauer Fig. 8 and Section 4.1 Especially "Parts of Encoder"), however, Neubauer failed to disclose partially decoding the stream and spread spectrum embedding in the quantized indices, sorting the stream in ascending or descending order, taking the difference of every pair of consecutive samples as a new partially decoded data stream,

alternating the sign of every other difference value, and substituting the new partially decoded data stream for the partially decoded data stream.

Cox teaches a method for embedding data into quantized indices of multimedia (See Cox Pages 1676-1678 Section III).

Birks teaches that by in a system that watermarks encoded data, it is advantageous to watermark the quantization indices as there is no need for inverse or forward transformation and therefore less processing.

Sprague teaches a method for compressing audio data involving sorting the data in descending order (See Sprague Claim 6), and then constructing a new set of data by taking the difference between pairs of consecutive samples resulting in an alternating signed data (See Sprague Col. 3 Lines 7-19).

Brody teaches that in an watermarking system, the watermark should be made perceptible by alternating every other sign of the watermark data (See Brody Col. 22 Paragraph 2).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Cox and Birks in the audio watermarking system of Neubauer by only decoding the data partially and embedding the watermark data in the quantization indices. This would have been obvious because the ordinary person skilled in the art at the time of invention would have been motivated to reduce the amount of processing required to embed and read the watermark.

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Sprague in the audio watermarking system of Neubauer, Cox, and Birks by utilizing the compression system of Sprague for compressing the quantization

indices. This would have been obvious because the ordinary person skilled in the art at the time of invention would have been motivated to considerably compact the quantization indices. Further, in this combination, the variance would be reduced as a result of taking the difference of pairs of consecutive samples.

It further would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Brody in the watermarking system by alternating the sign of every other watermark signal. This would have been obvious because the ordinary person skilled in the art would have been motivated to have the watermark be perceptible.

Regarding claims 2 and 11, the combination of Neubauer, Cox, Birks, Sprague, and Brody disclosed an index selector in communication with said partial decoder, said index selector operable to select a plurality of the quantization indices, thereby obtaining selected indices, and to determine respective amounts by which to modify the selected indices, wherein said data embedder is operable to embed the data into the quantization indices by modifying the selected indices according to the respective amounts, thereby obtaining a data-embedded partially decoded data stream (See Cox Page 1677 Col. 2 Paragraph 2, and Neubauer Section 4.1, "Watermark Generator" and "Weighting and Adding").

Regarding claims 3, 12, and 13, the combination of Neubauer, Cox, Birks, Sprague, and Brody disclosed that the index selector is operable to: choose indices corresponding to ranges within a sensitive portion of a human sensory range; discard zero indices; and always determine a minimum amount (See Cox Page 1677 Col. 2 Paragraph 2 and Section IV B ("Inserting and Extracting the Watermark").

Regarding claims 4, 9, and 14, the combination of Neubauer, Cox, Birks, Sprague, and Brody disclosed that the data embedder is receptive of an encoding key and operable to embed the data based on the encoding key (See Neubauer Page 2 Section "Robustness").

Regarding claims 24 and 26, the combination of Neubauer, Cox, Birks, Sprague, and Brody disclosed that the enhanced sequence was derived in accordance with E (the equation of claims 24 and 26) (See Sprague 3 Lines 7-23 and Brody Col. 22 Paragraph 2).

Regarding claim 25, the combination of Neubauer, Cox, Birks, Sprague, and Brody disclosed extraction in accordance with E (the equation of claim 25) (See Neubauer Section 3.2.2).

Claims 7, 17, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neubauer, Cox, Birks, Sprague, and Brody as applied to claims 1 and 10 above, and further in view of Smyth et al. (US Patent Number 5,974,380) hereinafter referred to as Smyth.

Neubauer, Cox, Birks, Sprague, and Brody disclosed an audio stream watermarking system (See the rejection of claim 1 above) in which "side information" was transmitted between the decoder and the encoder (See Neubauer Fig. 8 and Page 4 Paragraph 2) however, Neubauer, Cox, and Birks failed to disclose the specifics of the "side information".

Smyth teaches that in an audio Huffman coding system, "side information" includes bit allocations, scale factors, PMODES, TMODES, and codebook (See Smyth Col. 36 Lines 45-50).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Smyth in the watermarking system of Neubauer, Cox, Birks, Sprague, and Brody by including the necessary information for coding and decoding in the side information including the codebook. This would have been obvious because the ordinary

persons skilled in the art at the time of invention would have been motivated to provide the side information that was common in the art.

Conclusion

Claims 1-4, 7-14, 17, and 20-26 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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